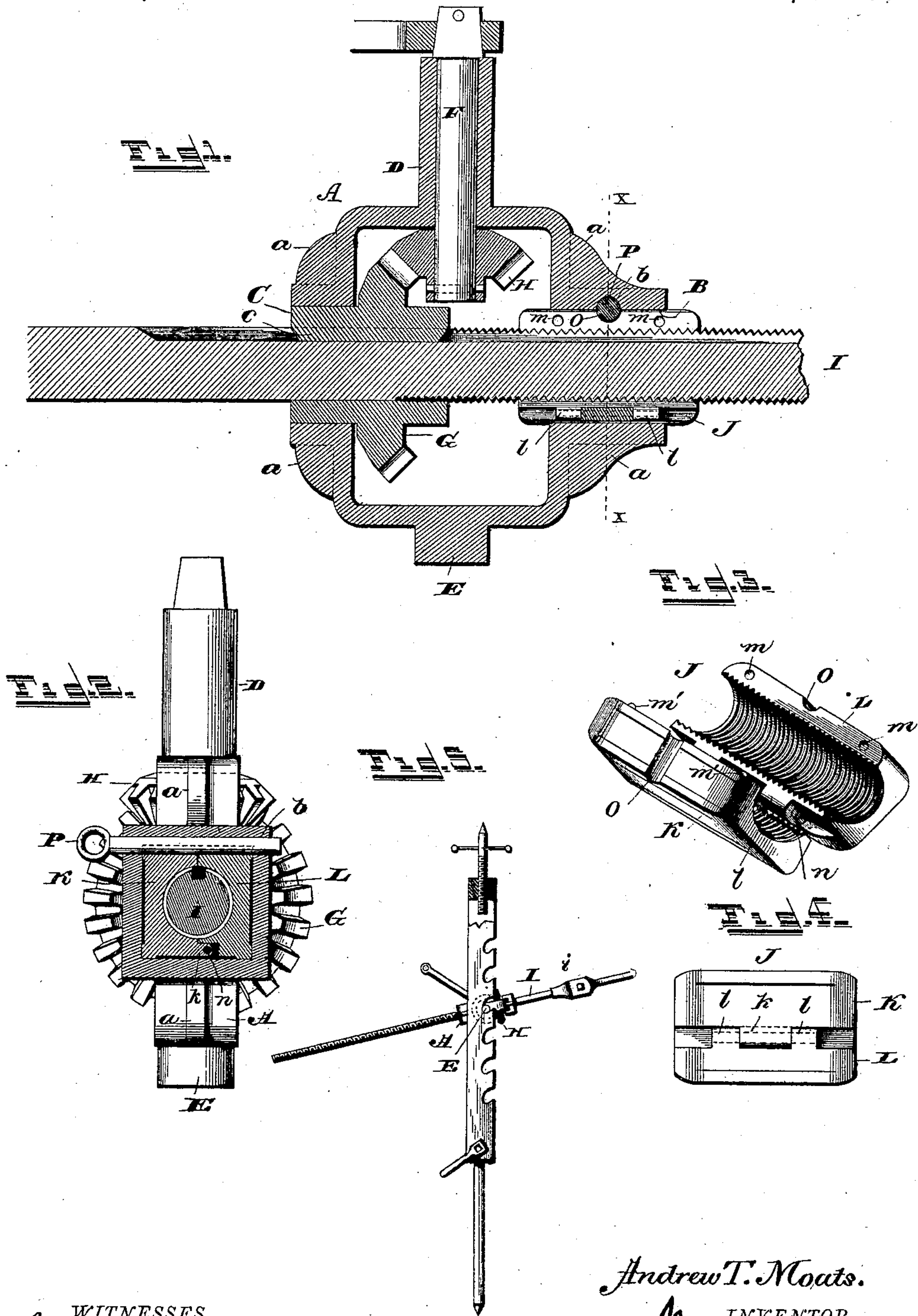


(No Model.)

A. T. MOATS.  
MINING MACHINE.

No. 397,089.

Patented Jan. 29, 1889.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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DIAMOND MINING TOOL COMPANY, OF SAME PLACE.

## MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,089, dated January 29, 1889.

Application filed March 22, 1888. Serial No. 268,149. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW T. MOATS, a citizen of the United States of America, residing at Pleasantville, in the county of Marion and State of Iowa, have invented certain new and useful Improvements in Mining-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in mining-machines; and it consists in certain details of construction and combination of parts, as will be hereinafter fully set forth, and specifically pointed out in the claims, whereby I am enabled to provide a mining-machine in which there are but few parts, the main frame being made up of a single casting and formed with a socket for the reception of a feed-nut, which can be readily removed from the frame when desired.

In the accompanying drawings, which illustrate my invention, Figure 1 is a sectional view. Fig. 2 is a sectional view through the line *x x* of Fig. 1. Fig. 3 is a detail perspective view of the feed-nut. Fig. 4 is a side view of the feed-nut. Fig. 5 is a view showing the application of my improvement to a supporting-frame.

A refers to the frame, made up of a single casting and provided at one end with a rectangular opening, B, one of the side walls of which being bisected by a groove, *b*, and on a line therewith the side walls adjacent thereto are perforated. The opposite end of the casting A has a circular opening, C, and on the sides of the casting, at right angles with these openings B and C, are formed trunnions D and E, one of which, as D, being hollow for the reception of the drive-shaft F, the outer end of which is key-ended for the reception of a crank-handle.

The casting A, which forms the frame, has at the angles thereof metal webs *a a* for reinforcing or bracing these angular parts.

G refers to a beveled gear-wheel, which is formed on a collar or sleeve, one end lying

within the circular opening C. This collar or sleeve has an opening therein for the reception of the drill-shaft, and has a feather or spline, *c*, which lies within a longitudinal recess in the drill-shaft. The beveled gear-wheel G engages or meshes with a similar gear-wheel, H, which is keyed upon the inner end of the drive-shaft F, so that when the drive-shaft is turned it will impart a rotary movement to the drill-shaft.

The drill-shaft I is screw-threaded and recessed longitudinally, and at one end is provided with a suitable chuck, *i*, to receive the drill.

The frame or casting A is provided at each bearing with oiling-holes.

J refers to the feed-nut, which is made up of two half-sections, K and L, which are provided with internal screw-threads, which engage with the screw-threads on the drill-shaft. The parts K and L are hinged to each other by forming the same with lugs *l l k* and pin-*n*. The corners of this nut are formed with slightly-raised edges, as clearly shown in Fig. 2, which will prevent the plain surfaces of the nut coming in contact with the rectangular sides of the socket B. The inner edge of the nut J opposite the hinge-joint has recesses *m* and projecting nibs *m'*, which lie within the recesses and prevent any sliding movement, and one side the nut is provided with a transverse groove, O, which registers with the groove *b* in one of the walls of the rectangular opening B, so that when the nut is placed within this rectangular opening a pin, P, passed through the circular perforation thus formed will securely hold the feed-nut against longitudinal movement within the frame.

It has been found desirable in this class of machinery to provide a means whereby the feed-nut can be readily removed to open the same and advance the drill-shaft rapidly or retract the same without having recourse to the driving mechanism. By means of the device hereinbefore described this can be readily accomplished without removing the trunnions from the supporting-frame, and the use of auxiliary locking means for holding the parts of the nut together is avoided.

As the trunnions of the main frame are, in



use, hung in the notches of the supporting-frame, and the drive-shaft F, where power is applied, is journaled in one of these trunnions, it follows that the drill will work much more steadily than the drills which have the power applied either forward or back of the trunnions or point of support for the main frame.

Having thus described my invention, I claim—

10 1. A main frame for mining-drills, consisting of a rectangular yoke provided at its ends with openings for the reception of the drive-gear hub and feed-nut and having at its sides trunnions arranged in line, one of which  
15 is tubular or hollow to form a bearing for the drive-shaft, substantially as described.

2. In combination with a main frame for mining-drills, consisting of a rectangular yoke provided at one end with a circular  
20 opening, at the other end with an angular opening having a transverse groove, and at the sides with tubular and solid trunnions arranged in line, a drive-wheel gear journaled in the circular end opening, a drive-shaft  
25 journaled in the tubular trunnion and carrying a gear at its inner end, a two-part feed-nut arranged to fit the angular opening and having a transverse groove at one side, a pin to fit the grooves of the feed-nut and angular  
30 opening, and the screw-shaft, substantially as described.

3. The combination, substantially as described, of the frame provided at the sides

with a solid and hollow trunnion and at the ends with circular and angular openings arranged in line, the drive-shaft mounted in the hollow trunnion and fitted at its inner end with a bevel gear-wheel, a collar mounted in the circular opening and provided with a bevel gear-wheel, a feed-nut removably secured in the angular opening, and the drill-shaft.

4. The combination, substantially as described, of the solid frame provided at the sides with a hollow and solid trunnion, at one end with a circular opening, and at the other end with an angular opening having one wall grooved transversely, the drive-shaft journaled in the hollow trunnion and provided at its inner end with a bevel gear-wheel, the sleeve journaled in the circular opening and provided exteriorly with a bevel gear-wheel and interiorly with a feather, the two-part feed-nut provided on one face with a transverse groove arranged to register with the groove in the angular opening, the threaded drill-shaft provided with a longitudinal groove, and a pin to fit the grooves in the angular opening and feed-nut to lock the latter against longitudinal movement.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW T. MOATS.

Witnesses:

W. W. MERRITT,

W. E. WRIGHT.